

## Historical notes and effects of grazing

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The area under consideration is Bridger Basin, a distinct physiographic and topographic unit of a portion of the Green River valley of southwestern Wyoming. It is characterized by a terrace and escarpment topography on the nearly horizontal Eocene beds. To the casual observer it has the general aspect of a sagebrush plain, but on closer inspection it presents not only sagebrush-rabbit brush communities, but also those of the gravel and the adobe flats, dry washes, fixed sand dunes, badland fronts, and gravel escarpments.

It is often maintained that the present flora of this section is very different from that found here when the emigrants of the fifties and sixties of the last century passed through. The supposed change has been accounted for in various ways, as the result of overgrazing or as the outcome of climatic changes. Of course there has been some overgrazing and ruderals have gained a foothold in many places as along railroads, highways and streams. In most cases, however, their appearance indicates disturbance of the soil by construction work, or by flooding and the incident erosion and deposit. It is the author's opinion that much of the supposed change is to be accounted for by seasonal variations. Dr. Aven Nelson, eminent botanist of the West, crossed the Red Desert on a tour of inspection (1930) for the express purpose of comparing and studying the changes that had taken place in the vegetation during the last thirty years. After a careful study of his original notes (1900) and thoughtful consideration of the problem from all angles, he reached the conclusion that there has been no appreciable change in spite of the fact that vast numbers of sheep browse on the forage of the area.

This contention is sustained by a study of the earliest historical notes available. During June, 1833, John B. Wyeth and party camped on the Green River while exploring its valley. On July 4 he reports in his diary the crossing of Ham's Fork. Townsend's narrative of the expedition, 1833-34 makes the following allusion to the vegetation:

"On the 14 of June we left the Sweetwater river and pro-

ceeded in a southwesterly direction to the Sandy river. . . . We found no water on the route and not a single blade of grass. . . . We observed a hoar frost and some thin ice (June 16) this morning at sunrise, but by midday the thermometer stood about 82. . . . Saw large herds of buffalo on the plains of the Sandy river, grazing in every direction on the short, dry grass. Domestic cattle would certainly starve here, and yet bison exist and even become fat. . . . Some of our famished animals attempted to allay their insatiable cravings by cropping the dry and bitter tops of the worm-wood with which the plain is strewed."

In this brief extract we note that the scarcity of grass on the sagebrush plains is reported. The wheat and other grasses are very common to-day but they are in an inconspicuous element of the flora. We can assume that they were not observed or that drought had precluded their growth. The *short dry grass* on which so many bison grazed was probably alkali grass, *Distichlis spicata*. This is the typical grassland of the river bottoms to-day. With it there is a sprinkling of giant rye grass, *Elymus condensatus* and alkali dropseed, *Sporobolus airoides*. That the sparse desert grass and browse is very nutritious has often been noted. (Hanna 1, Nelson 2) It is a fact familiar to all ranchers. The writer of the diary observed a very salient and significant fact, for herein lies the explanation of the value of desert forage and the resulting important live stock industry in a region that appears to be unfavorable to it under casual observation. The "worm-wood" eaten by the hungry animals was of course the common sagebrush, *Artemisia tridentata*, everywhere abundant on the plains of the region of to-day as it was then.

Joel Palmer, a shrewd genial farmer and a former legislator of Indiana, was another leader of the early emigrants. He kept an accurate daily journal and recounts camp experiences in the Green River valley, July 23, 1845. ". . . The road leaves the Green River near our camp and passes over a high and barren country to Black's Fork; this we followed up some four miles and encamped. As upon other streams there is occasionally a grassy bottom, with a little cottonwood and willow brush." How aptly these words apply to the valley of Black's Fork and the surrounding barren uplands. The occasional grassy bottom is the *Distichlis spicata* community discussed in connection with the earlier diary of Townsend. There is the reference to "a

little cottonwood and willow brush." They to-day form a conspicuous element of the tree and shrub communities along the river. With the willow and cottonwoods, we find an abundance of buffalo berries, hawthorns, currants, and buckbrush. An emigrant would naturally lump all the shrubs with the familiar and conspicuous willow-cottonwood elements of the flora.

From the diary of John Newman of Platteville, Wis., an emigrant who crossed the Black Fork country in 1857 we read: "A more worthless country I have never seen. Wormwood and a kind of golden rod extend miles on miles. . . . Some of the stock ate the scurfy leaves of spine-covered plants. . . . Low flats of dark green armed brush covered lots of the country along water courses." Here again the "wormwood" alludes to the sagebrush, *Artemisia tridentata*. The golden rod is no doubt a species of rabbit brush, *Chrysothamnus*. These plant forms characterize vast areas of the region. The plants with "scurfy leaves" relished by the stock was probably some species of salt bush. The "spine-covered" plant may possibly have been *Atriplex confertifolia*. The dark green areas of armed shrubs were probably greasewood flats.

These studies seem to bring out the fact that the essential elements of the flora of to-day are very similar to the conspicuous floristic elements prevalent in this region seventy-five or a hundred years ago.

#### References

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2. Nelson, Aven. 1898. The Red Desert of Wyoming. U. S. Dept. Agric. Div. Agrost. Bull. 13.
3. Coulter-Nelson. 1909. Manual of Rocky Mountain Botany.

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